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## Electron Density and Electron Temperature in Atmospheric Pressure Microplasma

**T. H. Tran<sup>1,2</sup>, J. H. Kim<sup>1</sup>, D. J. Seong<sup>1</sup>, J. R. Jeong<sup>2,3\*</sup>, S. J. You<sup>1\*</sup>**

<sup>1</sup>Center for Vacuum Technology, Korea Research Institute of Standards and Science, Daejeon 305-306,

<sup>2</sup>Department of Materials Science and Engineering, Chungnam National University,

<sup>3</sup>Graduate School of Green Energy Technology, Chungnam National University, Korea

In this work we measured electron temperature and electron density of a microplasma by optical emission spectroscopy. The plasma is generated from a small discharge gap of a microwave parallel stripline resonator (MPSR) in Helium at atmospheric pressure. The microwave power supplied for this plasma source from 0.5 to 5 watts at a frequency close to 800 MHz. The electron temperature and electron density were estimated through Collisional-radiative model combined with Corona-equilibrium model. The results show that the electron density and temperature of this plasma in the case small discharge gap width are higher than that in larger gap width. The diagnostic techniques and associated challenges will be presented and discussed.

**Keywords:** atmospheric pressure plasma, OES, microplasma, microwave plasma